AMENDMENTS TO THE SPECIFICATION

Please amend paragraphs 61, 62, 65, 78, and 81 as follows:

[0061] Fig. 10 illustrates many of the variables that can be derived from the upper ellipse 80 to represent some characteristics of the segmented image 31 of the occupant 18 with respect to an airbag deployment system 36. A centroid ~~84~~ 82 of the upper ellipse 80 can be identified by the system 16 for tracking characteristics of the occupant 18. It is known in the art how to identify the centroid ~~54~~ 82 of an ellipse. Alternative embodiments could use other points on the upper ellipse 80 to track the characteristics of the occupant 18 that are relevant to airbag deployment 36 or other processing. A wide variety of occupant 18 characteristics can be derived from the upper ellipse 80.

[0062] Motion characteristics include the x-coordinate ("distance") 98 of the centroid 82 and a forward tilt angle ("θ") 96. Shape measurements include the y-coordinate ("height") 94 of the centroid 82, the length of the major axis of the ellipse ("major") ~~88~~ 86 and the length of the minor axis of the ellipse ("minor") ~~86~~88. Rate of change information, such as velocity and acceleration, can also be captured for all shape and motion characteristics.

[0065] The image thresholding subsystem 100 can include two different modules, a set image threshold module ~~40~~ 104 and a perform image thresholding module ~~42~~106. The system 16 can generate an image threshold 44 to identify a first subset of pixels 40 as occupant pixels 40 and a second subset of pixels 40 as ambient pixels 40. The image threshold(s) 44 can be set by incorporating pixel characteristic 42 information as disclosed in Figs. 3, 4, and 5 and discussed in greater detail above. The application of the image threshold 44 involves comparing the pixel value 45 of a pixel 40 to the image threshold 44 in order to categorize or identify pixels 40 as belonging to one of two or more pixel categories, and then setting the revised pixel value 56 for the particular pixel 40 in accordance with the revised pixel value 56 associated with the pixel category. In a preferred embodiment, pixels 40 categorized at the time as representing the segmented image 31 of the occupant are set to a value of "1" and can be referred to as occupant pixels. In a preferred embodiment, pixels 40 categorized at the time as representing aspects of the ambient image 38 not relating to the occupant 18 are set to a pixel value 56 of "0" and can be referred to as ambient

pixels. In a preferred embodiment, each pixel 40 has only one pixel value 56, and that value is based on luminosity as the pixel characteristic 42.

[0078] As discussed in greater detail above, the momentum-based heuristic uses a counter to calculate the momentum effects of a series of pixel values 56. The counter determines whether or not sufficient "momentum" exists to re-classify a sequence of ambient pixels 40 as occupant pixels 40. They system 16 can be flexible in the different positive and negative weights associated with a particular pixel value 56. A first predetermined number can be added to the counter value each time the next adjacent pixel 40 belongs to a first pixel category, such as an occupant pixel 40, and a second predetermined number can be subtracted from the counter value each time the next adjacent pixel 40 belongs to a second pixel category, such as an ambient pixel 40. If the counter reaches a value less than or equal to zero before a sequence of ambient pixels 40 is traversed by occupant pixel 40 "momentum" then the remaining sequence of ambient pixels 40 remain as ambient pixels 40. Some embodiments can implement a linear approach to momentum-based processing, applying momentum on a pixel by pixel basis. Other embodiments may implement a threshold approach, where if the entire sequence of ambient pixels 40 is not overcome by occupant pixel 40 momentum, then none of the ambient pixels 40 in the sequence are re-classified as occupant pixels 40.

[0081] The segmented image 31 of the occupant 18 in isolation of the non-occupant images surrounding the occupant 18 in the ambient image 38 can be outputted from the gap processing subsystem 102. For the purposes of airbag deployment, the ellipse fitting subsystem 116 can generate an upper ellipse 80 from the occupant pixels and ambient pixels 40 outputted from the gap processing subsystem 102. For other embodiments, if other visual characteristics of the occupant are desirable, the initial pixel characteristics 42, such as luminosity in the preferred embodiment, can replaced the pixel values 56 for all occupant pixels 40, resulting in a segmented image 31 of the occupant 18. In some embodiments, the binary outline of the segmented image 31 of the occupant 18 is all that is required for the ellipse fitting subsystem. In other embodiments, a more visually detailed segmented image 31 can be generated by simply plugging back the initial luminosity values for each of the segmented pixels 40.